Amendments to Correct Typographical Errors

Dependent claim 26 has been amended to correct an obvious typographical error. However, the amendment does not narrow the scope of claim 26. Applicant does not intend to surrender any subject matter by making the change.

All Claims are Allowable over the Applied References

With respect to the rejections of claims 8, 10-14, 16-20, and 22-32 under 35 U.S.C. § 102(b), Applicants traverse the rejections for the following reasons.

Claims 8, 10-14, 16-20, 23-25 and 27-32 recite that fiber lengths are "formed as a multiplicity of unit cells, each cell comprising two adjacent fiber lengths of opposite sign dispersion." However, Taga et al. fails to teach or suggest the use of unit cells. Rather Taga et al. teaches away from unit cells by stating that "it is impossible" to obtain manufactured optical fiber sections with accurately controlled dispersion, and that multiple (e.g. "seventeen") sections of different lengths are concatenated "to compensate for manufacturing deviation of the optical fiber" and thereby form a desired average dispersion. See column 2, lines 43-48; column 5, lines 8-12; TABLE 1; and column 6, lines 9-13.

Claims 8, and 16 have been amended to recite that the path average dispersion of the multiplicity of unit cells is Anomalous. That is, the dispersion is negative if expressed in units of ps^2/km and positive if expressed in units of ps/km/nm. See specification, page 2, line 21. In contrast, Nakazawa et al. teaches that the path average dispersion is negative in units of ps/km/nm, or Normal dispersion, and fails to teach or suggest Anomalous dispersion. See column 1, second paragraph. Therefore, it is respectfully submitted that Nakazawa et al. fails to disclose every feature claimed in any of claims 8, 10-14, and 16-20.

Claims 22-32 recite that the optical pulse energy is greater than the pulse energy for a system with uniform dispersion. However, neither Taga et al. nor Nakazawa et al. teach or suggest pulse energy that is heightened above that for uniform dispersion.

Furthermore, claims 11, 13, 14, 18, 20, 25, 27 and 31 recite that the pulse profile, at the beginning of a unit cell or at the beginning of the multiplicity of cells, is substantially Gaussian in shape. However, neither Taga et al. nor Nakazawa et al. disclose that the pulse profile is Gaussian or substantially Gaussian.

Claims 11, 13, 14, 18, 20, 25, 27 and 31 have been amended to recite pulses that are "substantially Gaussian", rather than "Gaussian", in order to make them clearer that the scope of the invention includes pulses that are not strictly Gaussian but are supported by some exemplary dispersion management systems within the scope of the present invention, as exemplified in the specification on page 3, lines 28-30. Similarly, claims 8, 16 and 29 have been amended to recite a "soliton or soliton-like pulse", rather than a "soliton", to make them clearer that the scope of the invention includes pulses that change shape during propagation, as disclosed in the specification on page 2, lines 24-31.

Applicants submit, at least for the reasons above, that neither Taga et al. nor Nakazawa et al. teach or suggest all of the features of the claimed invention and that the rejected claims are allowable. Accordingly, Applicants respectfully request that the rejections of claims 8, 10-14, 16-20, and 22-32 under 35 U.S.C. § 102(b) be withdrawn.

In view of the foregoing, Applicant respectfully requests reconsideration of the present application and timely allowance of all pending claims. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicant's undersigned representative to expedite the prosecution.

Attached hereto is a copy of the marked-up changes made to the claims by the current amendment. The attached pages are captioned: "**VERSION WITH MARKINGS TO SHOW CHANGES MADE**."

Except for issue fees payable under 37 C.F.R. §1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. §§1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 50-0310. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. §1.136(a)(3).

Respectfully submitted,

MORGAN, LEWIS & BOCKIUS LLP

John D. Zele
Reg. No. 39,887

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Customer No. 009629
MORGAN, LEWIS & BOCKIUS LLP
1111 Pennsylvania Avenue, N.W.
Washington, D.C. 20004
Telephone: (202)739-3000
Facsimile: (202)739-3001

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

Claims 8, 10, 11, 13, 14, 16, 18, 20, 22, 25-29 and 31 have been amended as follows:

8. (Amended) An optical communication system for transmitting **a** soliton**[s]** **or soliton-like pulse**, comprising a multiplicity of fiber lengths of opposite sign dispersion concatenated together, for management of dispersion,

the fiber lengths being formed as a multiplicity of unit cells, each cell comprising two adjacent fiber**[s]** **lengths** of opposite sign dispersion, wherein each unit cell is short in relation to the length of the dispersion management system, **and wherein the path average dispersion of the multiplicity of unit cells is anomalous**.

10. (Amended) An optical communication system according to Claim 8, wherein the dispersion magnitude of adjacent fiber lengths of a unit cell are both far from zero in relation to the average dispersion for the unit cell which is close to zero, in order to permit propagation of **a** **[soliton]** pulse**[s]** wherein the shape of the **[soliton]** **pulse** alternately expands and compresses as it propagates through a unit cell.

11. (Amended) An optical communication system according to Claim 8, wherein the **[pulse]** profile of a **[soliton]** **pulse** at the beginning of a unit cell is **substantially** Gaussian in shape.

13. (Amended) An optical communication system according to Claim 8, arranged such that a pulse is launched into the multiplicity of unit cells with a **substantially** Gaussian shape.

14. (Amended) An optical communication system according to claim 10, wherein the unit cell is defined to start along the length of the fiber section between its ends, and to end along the length of the fiber section between its ends, and a pulse is launched into a unit cell of the dispersion management system with a **substantially** Gaussian shape.

16. (Amended) An optical communication system for transmitting **a** soliton**[s]** **or soliton-like pulse**, comprising a multiplicity of fiber lengths of opposite sign dispersion concatenated together for management of dispersion,

the fiber lengths being formed as a multiplicity of unit cells, each cell comprising two adjacent fiber**[s]** **lengths** of opposite sign dispersion, wherein each unit cell is short in relation to the length of the dispersion management system; **wherein the path average dispersion of the multiplicity of unit cells is anomalous;** and

wherein the dispersion magnitude of adjacent fiber lengths of a unit cell are both far from zero in relation to the average dispersion of the unit cell which is close to zero, in order to permit the propagation of **a** pulse**[s]** through the unit cells **[which]** **wherein the pulse** alternately compress**es** and expand**s** in shape as **[they]** **it** propagate**s** through the unit cell.

18. (Amended) An optical communication system according to claim 16, wherein the **[pulse]** profile of a **[soliton]** **pulse** at the beginning of a unit cell is **substantially** Gaussian in shape.

20. (Amended) An optical communication system according to claim 16, arranged such that a pulse is launched into the multiplicity of unit cells with a **substantially** Gaussian shape.

22. (Amended) A method of transmitting **<u>a</u>** soliton or soliton-like pulse**[s]**, the method comprising:

launching a stable soliton or soliton-like pulse having a predetermined energy into a dispersion management system, the predetermined energy being greater than that for launching a soliton or soliton-like pulse in an equivalent uniform system with equal path average dispersion.

25. (Amended) A method according to claim 23, comprising launching a soliton into the fiber, so that the **[soliton]** **<u>pulse</u>** at the beginning of a unit cell is **<u>substantially</u>** Gaussian in shape, the shape of the **[soliton]** **<u>pulse</u>** alternately expanding and compressing as it propagates through a unit cell.

26. (Amended) A method according to claim 22, including launching the pulse into the fiber with a predetermined shape**<u>.</u>**

27. (Amended) A method according to claim 25, including launching the pulse into the fiber with a **<u>substantially</u>** Gaussian shape.

28. (Amended) A method according to claim 23, comprising propagating a **[soliton]** **<u>pulse</u>** through the dispersion management system with the **[pulse]** profile of the **[soliton]** **<u>pulse</u>** at the beginning of each unit cell being the same, and the shape of the **[soliton]** **<u>pulse</u>** alternately expanding and compressing as it propagates through each unit cell.

29. (Amended) A method of transmitting a soliton**[s]** **<u>or soliton-like pulse</u>** in an optical communication system, the system comprising a multiplicity of fiber lengths of opposite sign dispersion concatenated together in order to provide a relatively high local dispersion at any given point, but a relatively low path-average dispersion,

the fiber lengths being formed as a multiplicity of unit cells, each unit cell comprising two adjacent fiber**[s]** **<u>lengths</u>** of opposite sign dispersion,

the method comprising launching a **[soliton]** pulse into the dispersion management system with a predetermined energy , the predetermined energy being greater than that for launching a pulse in an equivalent uniform system with equal path average dispersion,

and transmitting the pulse through the dispersion management system with the pulse profile **[having]** **<u>being</u>** the same at the start of each unit cell, whilst alternately compressing and expanding as the pulse progresses through a unit cell.

31. (Amended) A method according to claim 30, including launching the pulse into the system with a **<u>substantially</u>** Gaussian shape.

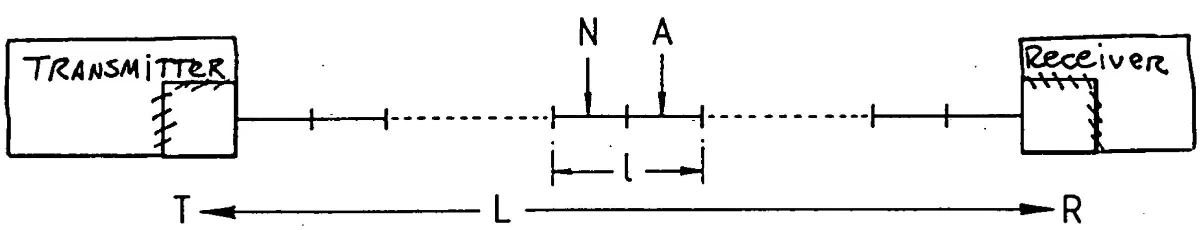

Fig. 5